



BSI NEWSLETTER

The monthly electronic newsletter of Botanical Survey of India

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March 2015

Director's Column

The Andaman and Nicobar Regional centre has celebrated its 44th foundation day on 30th March 2015. Prior to this, a review and inspection meeting was conducted at this regional centre at Port Blair and Dhanikari Botanical Garden cum Arboretum at Nayasahar, South Andaman. The latter is a repository of rare and endemic plants of A & N islands, which were introduced in the garden by collecting them from remote localities of these islands.

During this month, one of our scientists of CNH visited different parts of southern Western Ghats and collected good number of *Solanum* specimens. Similarly, a scientist from WRC conducted a field tour to Biligiri Rangaswamy Temple WLS for documenting angiosperms, whilst a scholar of that centre accompanied the scientist to study the diversity of microfungal diversity of that area. In contrast, a scientist from AZRC conducted an ethnobotanical exploration tour to Dang district of Gujarat and documented good number of ethnobotanical information.

In the newly constructed molecular lab at Eastern regional Centre, Shillong, the molecular characterization of rare and endemic species of NE India are being carried out by the scientists and scientific staff of that centre. The standardization of PCR protocol was done by using RAPD markers for which the DNA is being extracted from the leaf samples obtained from different regions. On the other hand, the scientists and scientific staff use the facility of SEM installed in their unit/centre and based on the SEM micrographs the species delimitation is made where it is difficult to delimit the species in certain complex groups only based on the macro-morphological characters.

Happy browsing!

Paramjit Singh

Director, Botanical Survey of India



In connection with the project, Liverwort & Hornwort Flora of Sikkim, Dr. Devendra Singh, Scientist 'C' submitted the manuscript in two volumes [vol. I (Haplomitriaceae to Lejeuneaceae) and vol. II (Ptilidiaceae to Dendrocerotaceae)] for publication.

For the project, 'Taxonomic diversity and ecology of cyanobacteria and algae in the alpine regions of Eastern Himalayas', Dr. Sudipta Kumar Das, AJCBPDF identified 18 species belonging to 12 genera, of which 4 species belonging to 2 genera of Chlorophyceae and 14 species belonging to 10 genera of Bacillariophyceae.

For the ongoing projects on 'Algal Flora of Jharkhand', 'Wild mushrooms of North Sikkim', 'Studies on wild mushrooms of East and South Sikkim', and 'Wood rotting fungi of Rajmahal hills', identifications, descriptions and line drawings are being made.

In connection with the 'Pharmacognostic studies on Medicinal Aconites of India' SEM and powder microscopic studies on the roots of four species of *Aconitum* were carried out by Dr. A.B.D. Selvam, Scientist 'D'.

Public service rendered

Dr. R.K. Gupta, Scientist 'D' evaluated the project proposal, 'Fresh water Algae from Lentic habitats of Northern Telangana region of Andhra Pradesh', submitted for funding to MoEF & CC, New Delhi. Dr. Gupta also identified two algal samples received from two different organisations for authentication.

Dr. Kanad Das, Scientist 'D' reviewed a manuscript for the journal *Kavaka*. Dr. Nihal Aziz, Scientist 'E' confirmed the identity of 6 specimens sent by prof. Mousumi Poddar Sarkar, Associate Professor, Ballygunge Science College, Kolkata.

Dr. A.B.D. Selvam studied and authenticated five wood samples as the heartwood of *Pterocarpus santalinus* (Leguminosae – Papilionoideae), which were received from Regional Deputy Director, Wildlife Crime Control Bureau, Eastern Region, Kolkata.

Meeting attended

Dr. W. Arisdason, Scientist 'C' attended the Regional Evaluation and Training workshop (Eastern & North-Eastern) for ENVIS Centres on 23rd March 2015 and Training on Bhuvan portal on 24th March, 2015 at Assam Science Technology and Environment Council, Guwahati, Assam .

Publication

Gupta, R.K. and Das, S.K. 2014. A new species of *Johannesbaptistia* De Toni from Jamtara, Jharkhand, India. *Nelumbo* 56: 283–285.



Aneura maxima (Liverwort) collected from Khechopari lake, Sikkim

Netrium digitus (Chlorophyceae)



Calothrix fusca (Cyanophyceae)



Spirogyra affinis (Chlorophyceae)

AJC BOSE INDIAN BOTANICAL GARDEN, HOWRAH

Plant saplings of 12 endemic mangrove species brought by Dr. Lal Ji Singh, Scientist 'D' & HoO, Andaman & Nicobar Regional Centre, Port Blair were introduced in Nursery no. 1 for acclimatization.

The seeds of *Jacquinia ruscifolia* brought from Bhagalpur by the Director, BSI along with 18 seeds of *Gustavia angusta* collected from garden are being processed at Nursery no. 1 for germination.

Public service rendered

Plant saplings of Palm were provided to Prof. S.R. Yadav, Shivaji University, Kolhapur for introduction and *ex-situ* conservation in Lead Garden at Shivaji University, Kolhapur, Maharashtra.

Visitors/students

Dr. George S. Srzedniki, SRF, University of South Wales, Australia; Prof. David Dilcher, Indiana University, USA; Prof. S.R. Yadav, Shivaji University, Kolhapur and team from Indian Audit & Accounts, Dept. of Regional Training Institute, Kolkata visited the botanic garden.

CENTRAL NATIONAL HERBARIUM, HOWRAH

In connection with the collection of *Solanum* (a collaborative project with Natural history Museum, London) as well as some labiate specimens from different parts of Tamil Nadu especially of Western Ghats (Anamalais, Nilgiris, Kodaikanal/ Palani hills), a tour was conducted by Dr. V. Sampath Kumar, Scientist 'D' from 5th March to 8th April 2015. During this tour, Dr. Kumar also consulted MH specimens of *Solanum* species to ascertain their distribution.

Scanning Electron Microscopy

Total 52 samples were studied by using SEM facility available at CNH by Scientists, Scientific staff and research scholars. The samples include *Aconite* roots, *Anaphalis* pollens and *Festuca* leaf and spikelets.

Meetings / Seminar attended

Dr. P. Lakshminarasimhan, Scientist 'E' & HoO attended the meeting of the Jharkhand State Wildlife Board held at Hon'ble Chief Minister's residence, Ranchi on 10th March 2015 as a representative of the Director, BSI.

Dr. V. Sampath Kumar, Scientist 'D' attended the 'First meeting of the Core Expert Group on Designated Repositories' held on 12th March 2015 at National Biodiversity Authority, Chennai as a representative of the Director, BSI.

Dr. Lakshminarasimhan attended the High Powered Evaluation Committee meeting on 13th and 14th March 2015 at ZSI, Kolkata and on 26th March 2015 at Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi for evaluation of the Technical Bids received for the Digitization of the Faunal Type specimens of the National Zoological Collections of ZSI as a member (Other members are Sri Sanjay G. Gehlot, DDG, NIC, New Delhi; Dr. R. Dalwani, Advisor, CS Division, MoEF & CC, New Delhi; Sri Alok Agarwal, Director IT, MoEF & CC,; Sri H.H. Mishra, DS, IFD, MoEFCC, New Delhi and Dr. Kailash Chandra, Scientist 'F', ZSI, Kolkata).

Dr. Lakshminarasimhan attended the inaugural function of the two-day National Seminar on Contemporary Progress in Plant Sciences on 20th March 2015 organized by Centre of Advanced Study (UGC), Dept. of Botany, The University of Burdwan. Dr. Lakshminarasimhan also chaired the plenary session lectures.

Dr. Lakshminarasimhan attended the Regional Evaluation and Training workshop (Eastern & North-Eastern) for ENVIS Centres on 23rd March 2015 and Training on Bhuvan portal on 24th March, 2015 at Assam Science Technology and Environment Council, Guwahati, Assam.

Lecture arranged

A lecture on '*Acacia sensu lato* (Mimosoideae): a global perspective' by Mr. Bruce Maslin, Senior Principal Research Scientist, Dept. of Environment and Conservation, Western Australia was arranged at CNH committee room on 13th March 2015, which was attended by Scientists, Scientific staff, Post doctoral and Research students of various units of BSI in Howrah and Kolkata.



Mr. Bruce Maslin delivering presentation at CNH



Plant exploration tours in connection with the collaborative project between BSI and NHM

Public service rendered

Digital photograph of Flora Indica drawing of *Casearia esculenta* were sent to Dr. Mac H. Alford, Associate Professor and Curator of the Herbarium, Department of Biological Sciences, University of Southern Mississippi, USA. Scanned images of five type sheets belonging to *Adenophora* (Campanulaceae) were sent to Dr. A. Mao, Scientist 'E' & HoO, ERC, BSI, Shillong. Scanned images of three specimens of *Salacia talbotii* were sent to Dr. N. Sasidharan, KFRI, Peechi, Kerala. Also sent scanned image of the type of *Urginea raogibikei* to Prof. S.R. Yadav, Shivaji University, Kolhapur, Maharashtra. Sent scanned image of one sheet of *Jatropha nana* to Mr. Ashish Nerlekar, Department of Biodiversity, Abasaheb Garware College, Pune and 23 type specimens of *Oberonia* species to Dr. Dianxiang Zhang, Director, Herbarium South China Botanical Garden, Guangzhou, P.R. China (for the study of Ms Yuling Li, a Ph. D. student).

Sent two page literature of *Salacia gambleana* [= *S. talbotii*] to Dr. N. Sasidharan, KFRI, Peechi. Provided scanned PDF of about 50 pages on Pteridophytes from various books and journals to Dr. M. Sanjappa, former Director, BSI.

Information on 18 weeds [i.e. their first report from India and Karnataka] was provided to Dr. Kavitha Sagar, Post-Doctoral Fellow (UGC), Botanical Garden, GKVK, Bangalore.

Identified 11 plant specimens, received from different colleges/ universities/ institutes /organizations and provided the authentication certificates.

Visitors/Students

Mr. Bruce Maslin, Senior Principal Research Scientist, Dept. of Environment and Conservation, Western Australia visited CNH from 2nd to 27th March, 2015.

Various college students visited CNH as part of their study tour.

- ◆ Sabang Sajanikanta Mahavidyalaya, Paschim Medinipur, West Bengal (45 students) on 03.03.2015.
- ◆ Vidyasagar College, Kolkata (60 students) on 10.03.2015.
- ◆ Asutosh College, Kolkata (21 students) on 10.03.2015.
- ◆ Mahatma Gandhi College, Purulia, West Bengal (7 students) on 11.03.2015.
- ◆ Shri Shikshayatan College, Kolkata (17 students) on 13.03.2015.
- ◆ Bethune College, Kolkata (29 students) on 13.03.2015.
- ◆ East Calcutta Girls' College, Kolkata (15 students) on 17.03.2015.
- ◆ Handique Girls' College, Guwahati, Assam (26 students) on 18.03.2015.
- ◆ Sree Chaitanya College, 24-Parganas(N), West Bengal (12 students) on 20.03.2015.
- ◆ Netaji Nagar College for Women, Kolkata (33 students) on 20.03.2015.
- ◆ Ranaghat College, Nadia, West Bengal (25 students) on 26.03.2015.
- ◆ Bidhan Nagar College, Kolkata (40 students) on 26.03.2015.

CENTRAL BOTANICAL LABORATORY, HOWRAH

During the month, 127 plant species from Deogarh district, Odisha were identified by Dr. Harish Singh, Scientist 'D' & HoO and Dr. P.A. Dhole, Bot. Asst.; 41 plant species of Koraput district were identified by Dr. K.A. Sujana, Scientist 'C'; 06 plant species of Jajpur district, Odisha were identified by Sri P.K. Baske, Botanist; 71 plant species of Ganjam district, Odisha were identified by Sri A.C. Halder, Botanist. Documented 50 ethnobotanical information of Deogarh district in prescribed format by Dr. P.A. Dhole and 38 ethnobotanical information of Koraput district in prescribed format by Ms. Monika Mishra, Bot. Asst. under the project 'Ethnobotanical Study of Odisha'. Sri R. Saravanan, Bot. Asst. sorted out and systematically arranged 846 herbarium specimens collected from Balasore district, Odisha. Final draft report on ethnobotanical study of Deogarh, Ganjam, Jajpur and Koraput were prepared and edited by team members.

Ms. Sagari Chaudhury, JRF working on the project 'Ethnobotanical study of Lodha (A primitive tribal Group) of West Bengal and nutraceutical analysis of selected plant species' prepared a database of 85 herbarium sheets of the



Scientific staff checking final Project Report



Presentations to college students at CBL

Public service rendered

Dr. Harish Singh identified a plant image of *Clerodendrum indicum* received from Sri Sanjeev Kumar, CCF, Jamshedpur.

Visitors/students

60 students and 6 teachers from East Calcutta Girls' College, Lake Town, Kolkata and Sree Chaitanya College, Habra, North 24 Parganas visited to Ethnobotanical museum of CBL.

INDUSTRIAL SECTION INDIAN MUSEUM, KOLKATA

In connection with 'Flora of the Phawngpui Blue Mountain Peak, Mizoram' Sri Samiran Panday, SRF completed descriptions of 28 species belonging to Apiaceae, Asteraceae, Caprifoliaceae, Convolvulaceae, Ericaceae, Gentianaceae, Icacinaceae, Melastomaceae, Myrsinaceae, Rubiaceae and Solanaceae.

Total 962 herbarium specimens (including 25 specimens collected by I. H. Burkill) were documented with relevant field notes and updated the nomenclature. Nomenclature of 10 digitized herbarium specimens of BSIS (BSIS00022- BSIS00032) were updated.

Public Services rendered

Dr A.K. Sahoo, Scientist 'D' evaluated a thesis entitled 'Studies on Wild Leafy Vegetables used by Ethnic Communities of Santhal Pargana, Jharkhand' for the award of Ph.D. degree in Faculty of Science, Ranchi University, Ranchi. Under NDPS act identification made for 7 samples.

ANDAMAN AND NICOBAR REGIONAL CENTRE, PORT BLAIR

In connection with 'Flora of Rani Jhansi Marine National Park', 'Flora of Trinket Island' and 'Morphological and Molecular characterization of *Memecylon* L.', 282 Angiosperm species were identified by the Scientists, Scientific staff and research students. Chemistry of 160 specimens of Lichens of Nicobar Islands were studied by T.A.M. Jagadeesh Ram, Scientist 'D'.

Some selected interesting plant samples, like *Adonidia merrilli*, *Attalea speciosa*, *Normanbya normanbyi*, *Hyphaene thebaica*, *Pinanga andamanensis*, *Couroupita guianensis*, *Chrysophyllum cainito*, *Victoria amazonica* were received from the AJC Bose Indian Botanical Garden and introduced at Dhanikhari Experimental Garden cum Arboretum, Nayashahar, S. Andaman.

The centre has celebrated its 44th foundation day on 30th March 2015. On this occasion, Dr. Lalji Singh, Scientist 'D' & HoO, Dr. T.A.M. Jagadeesh Ram, Scientist 'D', Dr. M.Y. Kamble, Scientist 'C', Sri Gautam Anuj Ekka, Pres. Asst. spoke about the aims and achievements of this centre. Smt. G. S. Lakra, Botanist (Rtd.) and Sri Radha Krishan, Bot. Asst. (Rtd.) shared their personal experiences and history of the this regional centre.



Celebration of 44th foundation day at ANRC, Port Blair on 30th March 2015

Hindi Karyashalya

The centre organized two-day *Hindi Karyashalya* from 4th to 5th March 2015 and Dr. Amit Kumar Srivastava, CIARI, Port Blair gave a lecture in the *Karyashalya*.

Work review & Inspection

Dr. Paramjit Singh, Director, BSI reviewed the progress of the scientific works and inspected Dhanikari Experimental Garden cum Arboretum, Nayasahar from 21st to 27th March 2015.

Meetings/Events

Dr. M.Y. Kamble attended general body meeting of the Society for Science Centre Port Blair held on 04.03.2015 at the Raj Niwas, Port Blair.

Dr. Lalji Singh participated in an executive council meeting of *Andaman Adim Janjati Vikas Samiti* at Secretariat, Andaman and Nicobar Islands on 17.03.2015.

Dr. Lalji Singh attended the inaugural function of Multi-parametric Geophysical Observatory at Shoal Bay, South Andaman on 30.03.2015.



Dr. Paramjit Singh, Director, BSI inspecting Dhanikhari Experimental Garden cum Arboretum , BSI, Nayasahar



Dr. Paramjit Singh delivering the inaugural address during review meeting at ANRC, Port Blair.

Visitors/trainees

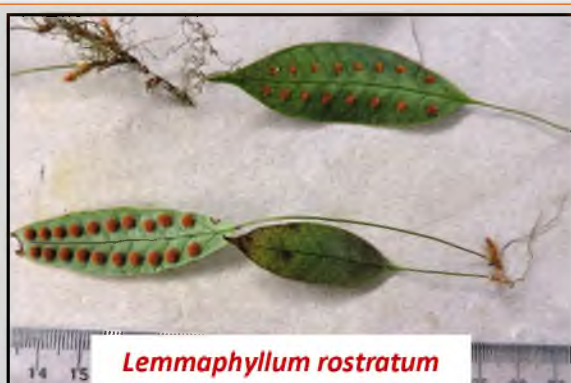
Sri K. Srinivas, Executive Program Officer, Doordarshan Kendra, Port Blair visited on 14.03.2015. Dr. S.K. Dwivedi, Fisheries, Scientist, Fishery Survey of India, Port Blair to BSI, Garden visited on 15.03.2015. Sri A. Saundara Pandian, Instructor, Forest Training Institute, Wimberlygunj, South Andaman and 17 refresher trainees visited on 16.03.2015.

Public services rendered

Seedlings of endemic, rare and threatened plants of Andaman and Nicobar Islands like *Areca triandra*, *Bentinckia nicobarica*, *Cycas zeylanica*, *Eria andamanica*, *Eulophia andamanensis*, *Knema andamanica* ssp. *andamanica*, *Lagerstroemia hypoleuca*, *Luisia* sp., *Mangifera andamanica*, *Pterocarpus dalbergioides*, *Schizostachyum andamanicum*, *Semicarpus kurzii* were provided to the AJC Bose Indian Botanic Garden, Howrah by Dr. Lalji Singh as a part of *ex-situ* conservation.

ARUNACHAL PRADESH REGIONAL CENTRE, ITANAGAR

Dr. P. Satyanarayana, Scientist 'D' & HoO, Sri B.B.T. Tham, Botanist identified 12 Field numbers for Flora of Pakke Tiger Reserve and Wild Life sanctuary; Dr. Rajib Gogoi, Scientist 'D' identified 5 species at ARUN in connection with the study of *Impatiens* of Arunachal Pradesh; Dr. Manas Bhaumik, Scientist 'D' identified specimens of 5 field numbers for Flora of East Siang District and Dr. Vineet Kumar Rawat, Scientist 'C' identified specimens of 15 field numbers for the family Polypodiaceae of North East India.



Lemmaphyllum rostratum



Pyrrosia subfurfurea

Dr. Manish K. Kandwal, Scientist 'C' conducted one herbarium consultation tour to BSI, NRC, Dehra Dun from 3rd to 28th March 2015 in connection with Grass flora of Arunachal Pradesh.

Dr. Souravjyoti Borah, Botanist conducted one herbarium consultation tour to BSI, ERC, Shillong and identified specimens of 163 field numbers in connection with Flora of Lohit District & Kamlang Wildlife Sanctuary.

Meetings attended /organised

Dr. P Satyanarayana, Scientist 'D' attended the 9th State Level Steering Committee Management Council Meeting of Dihang Debang Biosphere Reserve held on 04.03.2015 in the office of the Chief Secretary, Arunachal Pradesh, Itanagar.

कार्यालय का समिति कक्ष में दिनांक 30.03.2015 को राजभाषा कार्यान्वयन समिति की तिमाही (जनवरी - मार्च 2015) बैठक आयोजित किया ।

Visitors/students

Dr. Brijesh Kumar, Bot. Asst. and Dr. Pushpesh Joshi, AJCBPDF of BSI, Dehra Dun visited this centre, to whom Dr. V.K. Rawat, identified 10 specimens of ferns .

Public service rendered

Identified 25 species for Dr. Lyngdoah, Asst. Prof., Central Horticultural College, Pasighat. Photographs of 125 specimens of *Rubus* deposited at ARUN were sent to Dr. S.S. Dash, Scientist 'D' BSI Hqrs., Kolkata.

ARID ZONE REGIONAL CENTRE, JODHPUR

Sri Vinod Maina, Scientist 'D' & Sri Ravi Prasad, Bot. Asst. conducted ethnobotanical exploration tour to Dang District, Gujarat from 7th to 21st march 2015 and collected specimens by utilizing 186 field numbers.

Dr. S.L. Meena, Scientist 'D' and Dr. Harikrishna Peddi, Bot. Asst. proceeded on field tour to Shoolpaneshwar Wildlife Sanctuary, Gujarat from 16th to 27th March 2015 and collected specimens by utilizing 52 field numbers.



Albizia lebbek in flowering in Dang, Gujarat



Fallen flowers of *Madhuca indica* in Dang, Gujarat



Storage of *Zea mays* (local variety) in Dang, Gujarat

Hindi Karyashala

Hindi Karyashala was organised at this regional centre on 27.03.2015.

Seminar attended

Dr. S.L. Meena, Scientist 'D' attended and delivered a talk on "Floristic Diversity of Gujarat in Present Scenario" in the National Seminar on 'Impact of Climate Change on Biodiversity' at M.S. University, Vadodara, Gujarat on 25.03.2015.



Cordia dichotoma flowers at local market,



Asparagus racemosus tubers at local market,
Dang, Gujarat



Bauhinia racemosa pods collected
from wild sold at Dang, Gujarat



Broom making from *Phoenix* leaf
at Dang, Gujarat



Edible wild tubers of *Dioscorea*



Sticks of *Pongamia pinnata* at local market,
Dang, Gujarat



Erythrina suberosa in blooming at Shoolpaneshwer WLS, Gujarat



Tribal man selling *Cordia* flowers at Dang



Tribal lady selling fruits of *Moringa oleifera*

BOTANIC GARDEN OF INDIAN REPUBLIC, NOIDA

Seeds of Nine species viz., *Aloe vera*, *Aristolochia indica*, *Cymbopogon martini*, *Datura metel*, *Lagerstroemia hypoleuca*, *Nyctanthes arbor-tristis*, *Pterospermum xylocarpum*, *Tectona grandis*, and *Terminalia arjuna* were collected by Dr. Kuldip Singh Dogra, Scientist 'C'. The seeds of *Albizia amara*, *Bauhinia acuminata*, *Gymnocladus assamicus*, etc., are being germinated. The routine maintenance and development work of the garden are carried out by the scientists and staff.

Meeting

Dr. Sheo Kumar, Scientist 'E' & HoO attended a meeting at Shashtry Bhawan, Ministry of Tribal Affairs, New Delhi in

connection with the 'Mapping of Traditional Sport and Culture, Ethnobotanical Plant species to be used for curing diseases including Malaria and as source of food in tribal community and sports personnel' on 19.03.2015.

Public service rendered

Saplings of two plant species, *Catharanthus roseus* and *Cascabela thevetia* were provided to Sri Rabiun Sani Shawai, Sharda University, Noida.

Visitors/students

Total 1,105 visitors visited the garden during this month.

CENTRAL REGIONAL CENTRE, ALLAHABAD

In connection with the project "Floristic diversity of Parvati Aranga Wildlife Sanctuary and adjoining Tikri forest area, Gonda, U.P." Sri Vineet Kumar Singh, Bot. Asst. undertook a field exploration tour from 24th March to 2nd April 2015, collected specimens by utilizing 112 field numbers and live germplasm of *Barringtonia acutangula* and *Vanda* sp. for introduction in the botanic garden.

In connection with the project "Revisionary studies on tribe *Heliantheae* (Asteraceae)", Sri Jeetendra Kumar Vaisya, SRF undertook a herbarium consultation tour to BSI, NRC, Dehradun (BSD) from 07.03.2015 to 15.03.2015 and studied 350 herbarium specimens belonging to 18 genera.

In connection with the ongoing projects on floral diversity of Upper Ganga Ramsar site, Uttar Pradesh; Flora of Chhattisgarh, Floristic diversity of Parvati Aranga Wildlife Sanctuary and adjoining Tikri forest area, Gonda, U.P. and Lichens of Rajasthan, Kutch, Gujarat, a total of 45 species with different field numbers were identified. Similarly, for the Revisionary studies on the



Barringtonia acutangula swamp forest in Tikri forest reserve, U.P.



Thick epiphytic growth of Vanda

family Roccellaceae; Taxonomic studies on lichenised non thelotremoid Indian Graphidaceae, and lichens of terai region, Uttar Pradesh 10 species were identified. In addition, a total of 228 specimens of 129 field numbers housed at BSA were also identified.

Symposia/ Seminar attended

Dr. G.P. Sinha, Scientist 'E' & HoO and Sri Vineet Kumar Singh, attended a two day National Seminar on Science and Technology for Human Development organized by Allahabad University under the aegis of Indian Science Congress Association, Allahabad Chapter on 13–14th March, 2015.

Public service rendered

Identified 4 lichen specimens received from Dr. A. Tinabaye, Associate Prof., Puducherry.

Publications

Joseph, S. and Sinha, G.P. 2015. Contribution to the genus *Synarthonia* (Lichenized Ascomycota, Athoniaceae).

Lichenologist 47(2): 123–130.

Joseph, S. and Sinha, G.P. 2015. The lichenicolous species of *Melaspilea* (Melaspileaceae) in India. *Taiwania* 60(1): 18–22.

Singh, R.K. 2015. New distributional record of *Isachne mysorensis* Sundararagh. – An endangered grass from Mookambika Wildlife Sanctuary, Karnataka, India. *Indian Forest*. 141 (2): 223–224.

Singh, R.K. 2015. *Ceropegia jainii* and *C. rollae* (Apocynaceae) at brink of extinction. *Taprobanica* 7(2): 87–90.

Singh, R.K. 2015. Typification of seven species of *Litsea* (Lauraceae) endemic to India. *Phytotaxa* 201 (4): 278–286.

Singh, R.K. and Garg, A. 2015. Discovery of the critically endangered bulbous herb *Crinum woodrowii* (Amaryllidaceae) and its neotypification. *Taprobanica* 7(2): 68–71.

Singh, R.K. and Garg, A. 2015. New location for *Hubbardia heptaneuron* (Poaceae). *Taprobanica* 7(2): 111–113.

DECCAN REGIONAL CENTRE, HYDERABAD

Dr. M. Sankara Rao, Pres. Asst. conducted one field tour to Seshachalam Biosphere Reserve from 12th to 22nd March 2015 and collected specimens of 47 field numbers. Dr. P.V. Prasanna, Scientist 'F' documented 15 species from Seshachalam Biosphere Reserve. Dr. L. Rasingam, Scientist 'C' documented 10 species collected from Nagarjuna Sagar—Srisailem Tiger Reserve Wild Life Sanctuary. In connection with the ongoing Projects, research scholars have identified 16 species from Kawal Tiger Reserve and 25 species from Satkosia Tiger Reserve.

Dr. M. Sankara Rao collecting specimens from Seshachalam Biosphere Reserve



Conference/workshop attended

Dr. Prasad, PDF and Ms. Annamma, JRF, attended a National Level conference and workshop on DNA Barcoding at “India Genetic Congress 2015”, held from 2nd to 6th March 2015 at SRM University, Katankulathur, Chennai. Mr. Alok Chorghe, SRF, Dr. K. Prasad, SERB-DST, Young Scientist, Sri K. Chandramohan, JRF and Miss P. Annamma, JRF participated in National workshop on “Modern Trends in Molecular Phylogeny”, held from 15th to 20th March 2015 organized by Department of Botany, Calicut University, Kerala.

Public service rendered

Dr. P. Venu, Scientist ‘F’ reviewed a book entitled “Flowering Plants of Western Ghats” authored by T.S. Nayar *et al.* from TBGRI, Trivandrum and submitted it to Checklist.

Dr. P.V. Prasanna reviewed a manuscript for the *Journal of Tropical Grasslands-Forrajes Tropicales*.

Publication

Rasingam, L. 2015. Five new additions to the flora of Andaman & Nicobar Islands, India. *J. Threat. Taxa* 7(3): 7037–7041.



Sri Chandra Mohan, JRF giving feed back in National workshop on “Modern Trends in Molecular Phylogeny”

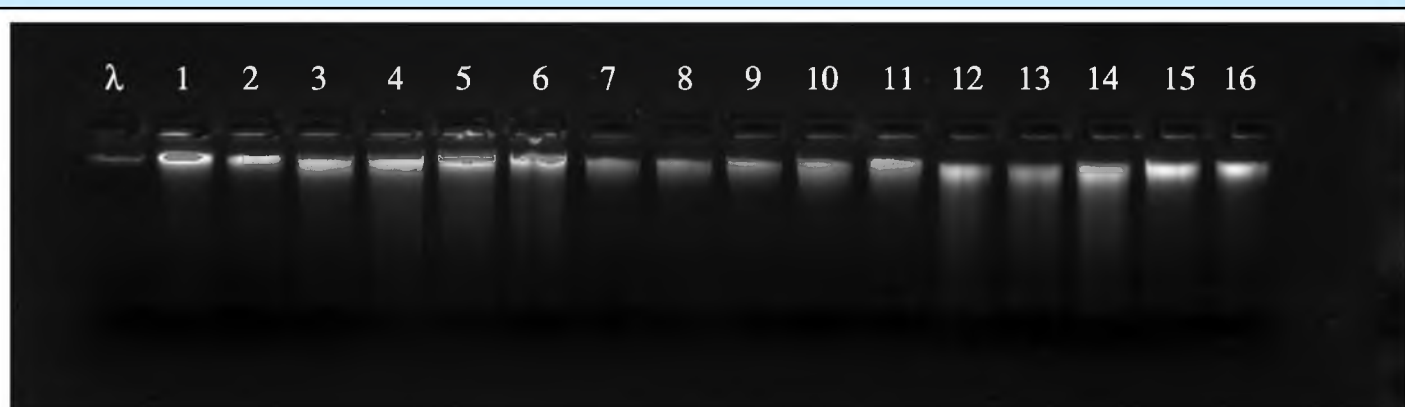
EASTERN REGIONAL CENTRE, SHILLONG

During the period 3 field tours were conducted to Laokhowa WLS (Assam) by Dr. Chaya Deori, Scientist ‘D’, Sri S.R. Talukdar, Sr. Prev. Asstt.; Amchang WLS (Assam) by Mrs. Nandita Sarma, Sr. Prev. Asst.; Yangoupokpi Lokchao WLS (Manipur) by Shri. R. Meite, Bot. Asst. Finalized identification and description for Flora of Murlen National Park, Mizoram and Laokhowa WLS, Assam. In connection the other ongoing projects, identified 32 and documented 32 species by the scientists and scientific staff.

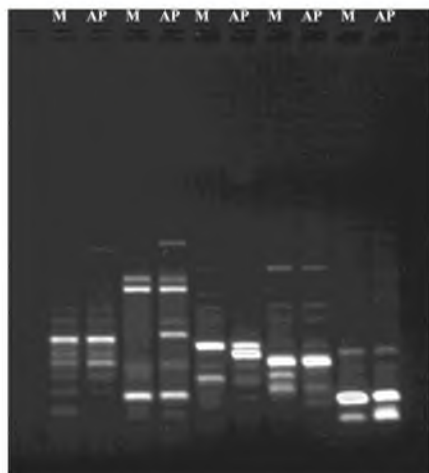
Micro propagation of RET species

For *Cymbidium tigrinum*, subculture done at regular periods. For *Armadorum senapatianum*, subculture was being continued at regular intervals and observations were also recorded. For *Rhododendron coxianum*, set up experiment for multiple shooting using different concentration of PGR subculture was being continued at regular intervals and observations were also recorded and transferred 30 plantlets to greenhouse. For *Ilex khasiana*, set up experiment for multiple shooting using different concentration of PGR.

For project related to Micro propagation, Phytochemical Screening of Medicinal Plants and Molecular Characterization of selected species of NE India, Standardization of PCR protocol was done using RAPD markers. DNA fingerprinting was completed with the extracted DNA of *Paphiopedilum venustum* (both Meghalaya and Arunachal Pradesh) using 10 RAPD primers. DNA extraction is completed with leaf samples of *Rhododendron formosum* var. *formosum* and *Rhododendron formosum* var. *inaequale*. Regular maintenance of initiated cultures of *Paris polyphylla* in MS medium was carried out. *In vitro* raised seedlings of *Pyrenaria khasiana* is being regularly subcultured and initiated callus induction studies using *in vitro* raised leaf explants.



Electrophoretic analysis of genomic DNA from fresh leaves of *Paphiopedilum venustum* (Lane 1 represent λ DNA-50ng/ μ L, Lane 1– 16 represents the extracted DNA)



RAPD profiles generated by the primers OPN-11, OPN-13, OPN-14, OPN-15 and OPN-16
M – represents amplified DNA of *Paphiopedilum venustum* from Meghalaya
AP- represents amplified DNA of *Paphiopedilum venustum* from Arunachal Pradesh

Seminar attended/lectures delivered

Dr. A.A. Mao, Scientist 'E' & HoO and Dr. D. Vijayan, scientist 'B' visited Gujarat State Biotechnology Mission, Department of Science & Technology in Gandhinagar, Gujarat on 2nd and 3rd March, 2015 and delivered a lecture on "Application of plant tissue culture in conservation" and "DNA barcoding – a valuable tool in biodiversity conservation".

Dr. A.A. Mao attended UGC-SAP(DRS-I) sponsored National Seminar on "Conservation of RET Plants" and delivered an invited lecture on strategies for conservation in the Department of Botany, Gauhati University on 31st March 2015.

Public service rendered

Identified about 73 samples of specimens received from various institutions.

Visitors /students

Two Professors, Twenty Research Scholars and Twenty four Students visited the Centre from various Institutions, Colleges and Universities.

Publications

Kumar, A., Manral, U. and Sharma, S. 2015. Traditional Remedy for Muscle Strain Using *Ipomoea carnea* Jacq. and *Ricinus communis* L. Leaves in Haryana, India. *International Journal of Medicinal Plants, Photon*, 108: 625–63. (This publication received International Sustainable Development Research Award-2015.)

Kumar, P.D., Kumar A., Dutt, B. and Sharma S. 2015. Ethnobotanical Knowledge and Usage of Wild Plants in Theog Forest Division, Himachal Pradesh, North Western Himalaya. *The Journal of Ethnobiology and Traditional Medicine, Photon*, 124: 922–935. (This publication received George Bentham Research Award-2015 in Ethnobotany.)

NORTHERN REGIONAL CENTRE, DEHRADUN

Identified 39 species and made description for 35 species in connection with the 'Angiosperm Flora of Uttarakhand, Flora of Kalesar National Park, Floristic Diversity and Phytosociological study of Simbalbara National Park, Flora of Nandhour Wildlife Sanctuary, Flora of Sonanadi Wildlife Sanctuary, Revisionary study Bignoniaceae and Tree ferns of India and genus *Lepisorus* (Sm.) Ching in India'.



Habenaria intermedia collected from Binsar WLS



Hedychium thyrsoforme collected from Sonanadi WLS

Meeting attended

Dr. S.K. Srivastava, Scientist 'E' & HoO attended RAC meeting, Botany Division, Forest Research Institute, Dehradun on 20th March 2015 regarding extension of period of Ph.D. student.

Workshop attended

Kumar Ambrish, Scientist 'D' attended workshop on "Ecosystem Services and innovative financing mechanism in the State of Uttarakhand" on 23.03.2015 at Graphic Era University, Dehradun as an expert in Biodiversity and management session organized by Uttarakhand Science Education & Research Centre (USERC), Dehradun and GBPIHED, Almora.

Public Service Rendered

Dr. S.K. Srivastava provided a list of Threatened plant species for introduction, multiplication and conservation in "Establishment of a Thematic Botanical Garden to Conserve Threatened/ Important Plant Species in Shiv Nadar University, Dadri, Gautam Budhnagar, U.P. to Prof. Jyoti Kumar Sharma, SNU Dadri.

Dr. P.K. Pusalkar, Scientist 'D' helped Dr. K. Chandra Sekar, Scientist 'D' G.B. Pant Institute of Himalayan Env. & Development, Kosi, Almora in identification of 200 specimens collected from various parts of cold deserts in Uttarakhand.

Dr. Achutanand Shukla, Bot. Asst. attended Sri Sonam Tamchos and Sri Nawang Tundup, Research Scholars, Department of Botany, University of Jammu and provided necessary information about Herbarium (BSD) and also helped in plant identification on 23rd March 2015 and also attended to Dr. Harsh Singh, Young Scientist, Lucknow University and also helped in photography of herbarium specimens.

Dr. Debasmita Duttapramanik, Bot. Asstt. attended and assisted Dr. Sangita Das Chowdhury, AJCBPDF, CNH, Howrah, in consulting herbarium specimens housed at BSD and scanning of 10 herbarium specimens

Plant identification service rendered

- ◆ *Bidens pilosa*, *Erigeron karvinskionus*, *Taraxacum officinale*, *Ipomoea carnea*, *Brugmansia suaveolens*, *Daphne papyracea*, *Salvia mukerjeei*, *Inula cuspidata*, *Pyracantha crenulata*, *Viburnum cylindricum*, *Callicarpa macrophylla*, *Malva verticellata*, *Princepia utilis* for Sri Devesh Tiwari, Res. Scholar, F.R.I., Dehradun.
- ◆ *Melia azaderach* for Anita Pal, Res. Scholar, Chemistry Division, F.R.I., D Dun.
- ◆ *Cymbopogon distans* and *Cupressus torulosa* for Gaurav Naik & S.Z. Haider, C.A.P. Selaqui.
- ◆ *Tectona grandis* for Ankit Kr. Saini, B. Pharma, DBIPR, Dehra Dun.
- ◆ *Asparagus adscendens*, *Ajuga parviflora*, *Anaphalis busua* for Ms. Deepti Mehra, M. Pharma, DVCP, Rudrapur.
- ◆ *Cynoglossum micranthum*, *Aster* sp. for Ms. Kalpana Joshi, M. Pharma, DVCP, Rudrapur.
- ◆ *Quercus leucotrichophora*, *Pyrus Prussia* for Sri Manoj Bisht, Asst. Prof., DVCP, Rudrapur.



***Selaginella adunca* - an Endemic Fern allies from Western Himalaya**

Visitors/students

Dr. K. Chandra Sekar, Scientist 'D' and Dr. Adeesh Pande, Res. Asst., G.B. Pant Institute of Himalayan Environment & Development, Kosi, Almora.

Dr. Harsh Singh, Young Scientist, Lucknow University.

Dr. Sangita Das Chowdhury, AJC Bose PDF, CNH, Howrah.

Mr. Harish Chand Anand, Asst. Prof., H.P. University Shimla.

Sri Zubin A. Malik from Jammu University, Jammu.

Dr. Manohar Lal, GBPIHED, Himachal Unit, Kullu.

SIKKIM HIMALAYAN REGIONAL CENTRE, GANGTOK

Dr. D.K. Agrawala, Scientist 'C' studied 50 orchid specimens and finalized their identity, assigned geo-coordinates and entered the data in excel sheet for the project, 'Red listing of Orchids of Eastern Himalaya as per IUCN criteria'. Dr. Agarwala introduced two orchid specimens in the campus for ex-situ conservation and further studies. Dr. Agarwala also identified and illustrated one orchid species, *Chiloschista parishii* Seidenf. based on live specimens collected by Dr. M.U. Sharief and partly from Sikkim Himalaya.

The project 'Flora of Shingba Rhododendron Sanctuary', was finalized by Dr. Chandan Singh Purohit, Bot. Asst. and submitted the Project report.

Public service rendered

Dr. D.K. Agrawala reviewed a manuscript received from *Bangladesh Journal of Plant Taxonomy* and sent the comments.

Visitors/students

M.Sc. students (65 nos.) from Calcutta University visited the SHRC to whom Dr. Agarwala demonstrated herbarium techniques, ex-situ conservation practices and delivered a lecture on "Collection, preservation and identification of Orchids". Similar demonstration was also given to 52 members of "HIMADRI" for Sikkim Himalaya region.

Function attended

Dr. M. Gangopadhyay, Scientist 'D' & HoO attended the National Science Day on 28th February 2015 at Sikkim Science Centre, Ranipool.



Chiloschista parishii - an uncommon orchid from Sikkim Himalaya

SOUTHERN REGIONAL CENTRE, COIMBATORE

Sri G. Gnanasekaran, Bot. Asst. of this centre accompanied Dr. V. Sampath Kumar, Scientist 'D', CNH, BSI in the field tours to various parts of Tamil Nadu (Nilgiri, Palani & Anamalai hills.) to collect *Solanum* spp. in connection with the collaborative project between Botanical Survey of India and Natural History Museum, London.



Solanum viarum in southern Western Ghats



Solanum violaceum, a common weed

For flora of 'Karaivetti Wildlife Sanctuaries, Tamil Nadu' by Dr. G.V.S. Murthy, Scientist 'F' & HoO, Dr. S. Kaliamoorthy, Scientist 'D' and Sri K. Yarrayya, Sr. Pres. Asst., specimens of 11 field numbers were identified. Dr. M. Palanisamy, Scientist 'D' and Sri S.K. Yadav, Bot. Asst. identified 22 field numbers of seaweeds for 'Seaweed Flora of Karnataka Coast'.

Under the 'Ex-situ conservation of endangered and threatened plants', Dr. S. Kaliamoorthy and his team multiplied a total of 81 samples (including 20 samples of endemic orchid *Coelogyne flaccida* 32 samples of ornamental orchids and 29 flowering plants), developed seedlings (21 nos.), cuttings (32 nos.), re-potted 10 nos. of *Coelogyne flaccida* and recorded the phenology of 26 species including 14 orchids and 12 species of angiosperms at National Orchidarium and Experimental Garden (NO & EG), Yercaud.

Dr. Kaliamoorthy studied the asymbiotic germination of *Coelogyne nervosa* by growing matured green capsules into Protocorm Like Bodies (PLBs) and its further transfer onto basal MS medium. He standardized the cost effective way of germinating *Anthurium* seeds and prepared the list with distributional status of orchids in Peninsular India.

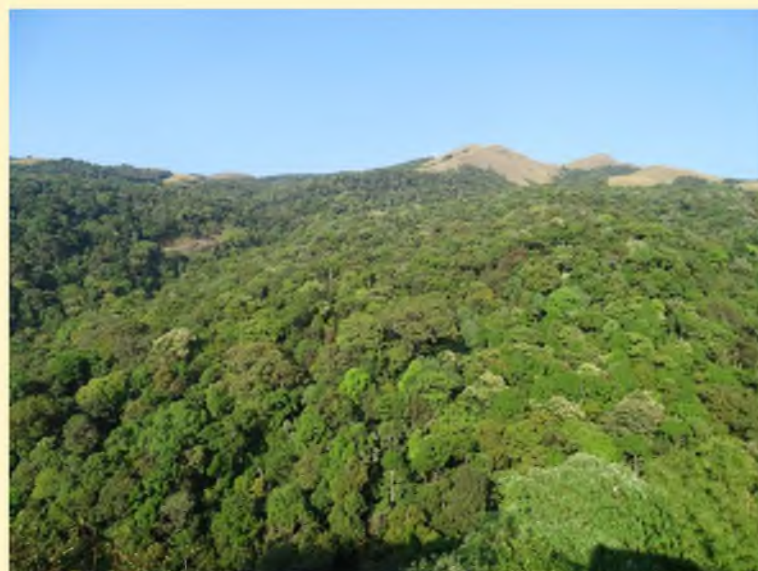
Dr. J.V. Sudhakar, Bot. Asst. prepared a list of 20 endemic and threatened plants of Niligiris, Anamalais and Palani hills. Dr. Sudhakar collected germ plasm (seeds) of endemic plant *Barleria acuminata* from Maruthamalai hills and displayed at Museum.

Scanning Electron Microscopy

Dr. J.V. Sudhakar micrographed the achenes of *Ficus cupulata* and *F. semicordata* by using SEM installed at SRC.

Public service rendered

Identified 52 plant samples received from various institutions / organisations and supplied a total of 352 photocopies for library visitors. A special lecture on Herbarium methodology and typification etc. was arranged for 34 trainees, who attended Plant Taxonomy Training at IFGTB, Coimbatore on 4th March 2015.



A view of forest from Akkamalai hills, Anamalais, Western Ghats, Tamil Nadu

Visitors/students

Dr. V. Sampath Kumar, Scientist 'D', CNH, Howrah visited for consultation of herbarium and Library. Dr. A. Xavier, Ms. Raneek Prakash and Mr. W. Jacek of Natural History Museum, London, UK visited MH for consulting *Solanum* specimens. A total of 85 students/research scholars /lectures/ scientists visited the herbarium and library of the SRC whereas total 569 persons in 120 parties visited NO & EG, Yercaud.

Submission of Ph.D. thesis

A Ph.D. thesis, "A Systematic Study on the Genus *Andrographis* Wall. ex Nees in India" was submitted by Sri G. Gnansekar (Supervisor Dr. G.V.S. Murthy) to Bharathiar University, Coimbatore.

Publication

Palanisamy, M., Yadav, S.K. and Murthy, G.V.S. 2015. Diversity and distribution of seaweeds at Varkala coast: A strategy for conservation. In: Thahira Banu, A. (ed.), *Therapeutics of Marine Bioactive Compounds*. Pp. 12–28. (ISBN-13-978-9384-64914-2), New Delhi.



Dr. A. Xavier and Mr. W. Jacek from NHM at MH

WESTERN REGIONAL CENTRE, PUNE

Dr. J. Jayanthi, Scientist 'D' conducted a field exploration tour to Biligiri Rangaswamy Temple Wildlife sanctuary, Karnataka from 23rd March to 6th April 2015 to study the angiosperm flora. Dr. Jayanthi was accompanied by Ms. Shreya Sengupta, JRF to study the diversity of microfungi of that area.

Dr. Rashmi Dubey, Scientist 'D' made herbarium consultation tour to Forest Research Institute, Dehradun from 01.03.2015 to 05.03.2015.

During this month, 99 angiosperm specimens from different regions of Maharashtra, BRT Wildlife sanctuary, Koyna Wildlife sanctuary and Sharavathy Wildlife sanctuary were identified. Besides, 13 pteridophyte specimens from different areas of Maharashtra and Karnataka and 47 fungal species were also identified by the scientists and researchers of the centre.



Psilotum nudum – an endangered pteridophyte



View of Biligiri Rangan hill, Karnataka

Scanning Electron Microscopy

Spores of *Trigonospora ciliata* (and *Tectaria coadunata*) were studied and micrographed under Scanning Electron Microscope (SEM) in connection with the 'Pteridophytic flora of Karnataka'.

Public service rendered

Identification and authentication of plant specimens were done for research students, B. Pharm. and M. Pharm students.

Function attended

Dr. A. Benniamin, Scientist 'D' & HoO along with other scientists attended the 100th Birth Anniversary of Zoological Survey of India, Western Regional Station, Pune.

Visitors/students

For consultation of herbarium and library about 100 visitors made visit to WRC during this month from Dept. of Biological Sciences, Indian Institute of Science Education and Research (IISER), Bhopal, Madhya Pradesh; St. Xavier's College, Mumbai; Agharkar Research Institute (ARI), Pune; D.Y. Patil School, Pune and Shivaji University, Kolhapur Maharashtra.

TRANSFERS/REDEPLOYMENT

Dr. C. Murugan, Scientist 'D' transferred to SRC, Coimbatore on transfer from ANRC, Port Blair, who reported to duty at SRC on 16th March 2015 .

Sri S. Nagaraju, Bot. Asst. redeployed to DRC, Hyderabad from CBL, Howrah, who reported to duty at DRC on 16th March 2015.

Sri Amit Diwakar Pandey, Pres. Asst. transferred to WRC, Pune from CBL, Howrah, who reported to duty at WRC on 16th March 2015.

PLANT OF THE MONTH



Butea monosperma (Lam.) Taub. (CAESALPINIACEAE) Known as Flame of the Forest or Palash, is native to tropical and sub-tropical parts of the Indian Subcontinent and Southeast Asia. Resin obtained from stem is used in leather industry. Dye obtained from flowers is a natural colour used for fabric dyeing.

By Dr. B.K. Singh



Bauhinia purpurea in flowering at Dang, Gujarat



Dr. Paramjit Singh, Director, BSI felicitating Mr. Bruce Maslin, Scientist, Western Australia



Fumigation in the type herbarium of MH



Fumigation in the general herbarium of MH

Thanks to all the scientists and staff of various regional centres and units of Botanical Survey of India for contributing to this newsletter

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